

pyloroplasty is a freely movable, or, secondly, a mobilized duodenum. This prerequisite is as a rule not present in a chronic perforating duodenal ulcer, rarely present in an acute perforating duodenal ulcer, and a pyloroplasty never would be employed for a perforating gastric ulcer of the lesser curvature of the stomach. Mobilization by a lateral linear incision of the posterior peritoneum would be unwise in the presence of possible infection. Pyloroplasties performed where the duodenum is not freely mobile or where, as Butler and Carlsen say, "the stomach must be pulled or shoved over to the duodenum" do not give a good functional result and the majority have to come to further surgery.

It is recommended therefore that in the stage of contamination, simple closure of the perforating duodenal and gastric (pyloric antral) ulcer, with gastrojejunostomy only where obstruction is likely to ensue, and simple closure of the gastric ulcer of the lesser curvature with excision at times if possible but always accompanied by gastrojejunostomy, be performed.

CONTROL OF URINARY HEMORRHAGE*

By PAUL A. FERRIER *

DISCUSSION by James R. Dillon, San Francisco; Franklin Farman, Los Angeles.

WHILE the control of urinary hemorrhage is often simple, there are instances which tax the resources of the most skillful surgeon. It is proposed to consider these resources.

Successful treatment of hemorrhage includes the removal of the underlying pathological conditions. To recall the etiology, I have tabulated from MacKenzie, Kretchmer and Chute 1679 cases of hematuria, with their causes, in order of frequency.

| CAUSES OF HEMATURIA | Cases | Per Cent |
|----------------------------|-------|----------|
| KIDNEY | 1679 | |
| Pyelitis or pyelonephritis | 712 | 42.4 |
| Tuberculosis | 217 | 12.3 |
| Stone | 180 | 10.7 |
| Nephritis | 145 | 8.6 |
| Malignancy | 56 | 3.3 |
| Hydronephrosis | 54 | 3.2 |
| Trauma | 20 | 1.1 |
| Polycystic kidney | 12 | .71 |
| Congenital anomaly | 11 | .66 |
| Pyonephrosis | 11 | .66 |
| Syphilis | 4 | .23 |
| Infarct | 2 | .11 |
| Movable kidney | 2 | .11 |
| Echinococcus | 1 | .05 |
| BLADDER | 527 | 31.3 |
| Tumor | 358 | 21.3 |
| Stone | 72 | 4.2 |
| Chronic cystitis (simple) | 49 | 2.8 |
| Tuberculosis | 14 | .73 |
| Hunner ulcer | 9 | .53 |
| Diverticulum | 8 | .47 |
| Trauma | 7 | .41 |
| Polypi | 3 | .17 |
| Cord bladder | 2 | .11 |
| Fistula | 2 | .11 |
| Cystitis cystica | 1 | .05 |
| Angioma | 1 | .05 |
| Ruptured artery | 1 | .05 |
| PROSTATE | 225 | 13.4 |
| Hypertrophy | 135 | 7.7 |
| Cancer | 61 | 3.6 |
| Inflammation | 13 | .77 |
| Tuberculosis | 10 | .58 |
| Stone | 4 | .23 |
| Foreign body | 2 | .11 |

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| | Cases | Per Cent |
|------------|-------|----------|
| URETER | 151 | 8.8 |
| Stone | 142 | 8.4 |
| Stricture | 6 | .35 |
| Atony | 2 | .11 |
| Cancer | 1 | .05 |
| URETHRA | 64 | 3.8 |
| Urethritis | 26 | 1.5 |
| Trauma | 13 | .77 |
| Stricture | 12 | .71 |
| Caruncle | 10 | .58 |
| Prolapse | 2 | .11 |
| Polypi | 1 | .05 |

This list while not complete is representative. Essential renal hematuria of varied etiology is not tabulated, but is an important problem because of its differential diagnosis by exclusion, and its demand for control of bleeding.

In every hematuria diagnosis comes first. The initial bleeding is never fatal. Every day patients lost because the easy-going physician tides over a hemorrhage from tumor or tuberculosis while the opportunity for cure slips. Caspar states that in only three of 142 cases of bladder tumor seen soon after the first bleeding was the tumor large. By all means, diagnosis comes first. But help is often needed preliminary to radical treatment, and it is not always possible to remove the pathological lesions. Therefore, palliative hemostasis is important.

General as well as local causes must be considered. Clotting power may be at fault. While the mechanism of clotting is not fully understood, it is recognized that the clot is built upon fibrin, which exists in the blood as fibrinogen. Fibrinogen is coagulated by a protein substance thrombin, capable of being isolated and combining with 215 times its weight of fibrinogen. Thrombin exists in the blood as prothrombin, which is activated by tissue and blood cell juices called thrombokinase in the presence of a sufficient concentration of a soluble salt of calcium. The blood is kept from clotting in the veins by an antagonist to the prothrombin.

Four deficiencies may exist: that of calcium; of prothrombin; of platelets; of tissue juices, so called thrombokinase. The calcium clotting time may be tested and if calcium is lacking as, for example, in chronic jaundice, the administration of 10 cc. of 10 per cent calcium chloride intravenously on three successive days restores clotting. The common practice of giving calcium lactate by mouth is ineffective because of small absorption. In hemophilia prothrombin is lacking. In purpura platelets are low. These may only be supplied by blood or tissue juice from another person.

Clotting may be raised above normal by increasing the thrombokinase locally or generally. Locally by squeezing out the patient's own tissue juices. For example, Freyer advises massaging the prostatic capsule after enucleation; by heat; by transplanting muscle tissue, or by application of cephalin, or thromboplastin. For general action these may be injected subcutaneously. They have largely superseded horse serum on account of the danger of anaphylaxis and serum sickness.

Neuhoff and Hirshfeld found that intramuscular injection of sodium citrate greatly hastened clotting in normal or abnormal blood, except in platelet deficiency. The effect lasts two to three hours. Fifteen

cc. of 30 per cent sterile sodium citrate solution is injected into the muscle of each buttock preceded by novocain. No harm was noted in two hundred cases, even in nephritis. I have found this useful in oozing hemorrhages.

Mills, of the University of Cincinnati, has purified a tissue extract, which he calls "tissue fibrinogen." It is a protein united with cephalin. Administered subcutaneously, or with ice water on an empty stomach, it diminishes the clotting time one-half in fifteen minutes, the effect lasting several hours. He claims an effect in all types of bleeding except (1) severe jaundice, (2) rapidly progressive secondary anemia, (3) purpura, (4) hemophilia, after the bleeding has continued two days. It has the disadvantage of being unstable.

Finally, for all serious hemorrhages the sheet anchor is blood transfusion, both to replace the loss, and to promote clotting. Whole blood versus citrated blood has been much discussed. To replace massive loss that is best which is quickest. The citrate method is easier, can be done by one person, and the blood can be transported. But it is generally agreed that fewer undesirable reactions follow whole blood; and with proper assistance it is the method of choice. The patient should be previously grouped with available donors. But it is a comfort to know that Birnes in recently reporting 1000 transfusions states that in 426 cases in which a Group IV donor was used for a patient in another group, the percentage of reactions was no higher than in a series in which donor and recipient were in the same group.

How to stop essential hematuria has long been a problem. The Johns Hopkins series reported by Levy indicates that nephrotomy is not justifiable, as the results are better with the injection of 5 per cent silver nitrate into the pelvis of the kidney. Connor at the Mayo Clinic has recently shown in twenty-two cases of essential hematuria a definite deficiency in blood platelets. Other cases were proved to be associated with purpura hemorrhagica. In one such case under my observation, long continued hematurias with general purpura ceased with the intravenous injection of mercurochrome.

In bleeding from pyelitis injection of silver nitrate solution up to 5 per cent is effective, if combined with elimination of focal infection and correction of faulty drainage.

In bleeding from the lower urinary tract, when the pathology cannot be removed, rest, general and local by indwelling catheter, continuous two-way irrigation with 1:15000 silver nitrate solution, fulguration or diathermy are available. In spite of its limitations in the cure of malignancy of the bladder and prostate, radium for the arrest of hemorrhage is invaluable. Deep x-ray therapy is also useful.

No attempt is being made to cover individual urologic operations, but the general principles of exposure, careful dissection under the eye, looking out for aberrant vessels, painstaking ligation, proper pedicle development, double clamping, individual ligation, are vital.

One operation will be mentioned because men have viewed with complacency a degree of hemorrhage which would not be tolerated in any

other operation: that is, prostatectomy. Thompson Walker states in 1920 that in the entire series of prostatectomies at Saint Peters Hospital, only two deaths were attributed to hemorrhage. But the following causes were invoked: shock, 10; syncope, 3; exhaustion, 7; cardiac, 9. He says, moreover, that one in every ten bleed seriously. Folsom collected 3588 prostatectomies with only four deaths from hemorrhage. He considers hemorrhage negligible. Hemorrhage is not pleasant to admit. He does not list the deaths from shock, exhaustion, syncope, cardiac failure, hypostatic pneumonia or the prolonged convalescence and permanent loss of vitality due to severe bleeding. But the use of wide-open exposure, ligation of bleeders in the prostatic capsule advocated by Thompson Walker, and the use of the Pilcher bag, Hunt has indeed made hemorrhage negligible in suprapubic prostatectomy.

Finally, the individual reaction of every bleeding patient to hemorrhage should be thoughtfully considered. One may bear with impunity what is disastrous to another. The blood pressure and heart bear careful watching. Stimulating a heart suffering for want of blood is unintelligent treatment. Replacing blood by salt solution is temporary respite. Transfusion, if needed, should be resorted to early, not merely to spare a hemorrhage death, but to avoid a prolonged dangerous convalescence with perhaps permanent deterioration.

DISCUSSION

JAMES R. DILLON, M. D. (490 Post Street, San Francisco)—Doctor Ferrier has ably presented the subject of hematuria, which should be regarded by the general profession as seriously as it is at present by the urologist. The importance of early diagnosis cannot be overemphasized, and it is inconceivable how a physician can temporize with a patient having repeated attacks of hematuria, some lasting several weeks or months, before seeking expert advice. Unfortunately patients frequently fall into the hands of unskillful cystoscopists, and are frightened from follow-up examinations, which are often necessary.

Hemorrhage following prostatectomies is often more serious than admitted, but if properly packed or held by the Pilcher or Davis bag, whether suprapubic or perineal, there will usually be no trouble. However, if bleeding again starts after removal of the bag or packing and does not quickly respond to the usual hemostatics before the pulse rate gets too high, we should not hesitate to do a cystotomy and repack or replace the bags, and push our hemostatics. As long as the pulse rate is carefully watched and kept under control there will be little use of the excuses of "shock, syncope, and exhaustion."

FRANKLIN FARMAN, M. D. (1401 South Hope Street, Los Angeles)—This essay by Doctor Ferrier upon an important urologic subject is of interest to all physicians. When speaking of control of hemorrhage, whether within the urinary tract or elsewhere, we naturally think of means to stop the bleeding. But to control hemorrhage, one must know first the cause and site of bleeding. The list as given by Ferrier, from the compilation of MacKenzie, Kretschmer and Chute, shows the multiplicity of disease entities which may produce hematuria. Every case of hematuria therefore should be subjected to an exhaustive urological investigation, if necessary to clear up the diagnosis.

The obscure case of hematuria is usually classified as "essential," but in many instances by more painstaking examination definite pathology will be found to account for the condition such as an epithelial tumor of the ureter or kidney pelvis, or a small papilloma of the posterior urethra. In women it is easy to overlook bleeding from an intraurethral caruncle.

Undiagnosed and neglected cases of hematuria may

lead to severe secondary anemia, so besides the primary pathology, we have a blood dyscrasia to combat.

Hematuria (gross or microscopic) may occur early in bladder tumor, and by immediate cystoscopic examination many more cases of cancer will be discovered early, thereby offering the patient a good chance for cure by surgery, the cautery, radium, or x-ray.

Bleeding from the bladder neck caused by acute congestion in hypertrophy of the prostate, though troublesome, rarely is serious and usually can be controlled by catheterization, relieving the pressure and washing out the blood clots. Should this fail, suprapubic cystotomy to control the immediate hemorrhage is indicated, which procedure also serves to drain the bladder in preparation for prostatectomy.

Hemorrhage following suprapubic prostatectomy no longer is a menacing complication providing these elderly patients are not rushed to operation without proper preliminary preparation, and providing the actual enucleation of the gland is carried out not as a blind "bloody" procedure, but as an open operation under visual control.

THE DIAGNOSIS OF GENITAL LESIONS

By H. J. TEMPLETON *

DISCUSSION by Ernest K. Stratton, San Francisco; H. P. Jacobson, Los Angeles.

THE correct early diagnosis of genital lesions is of paramount importance to the patient and the public. Most of the diseases attacking the genitalia are local in their action. The importance of their early recognition lies in differentiating them from the seemingly insignificant local lesion of that most generalized of all diseases, syphilis.

I make no apologies for writing on this subject which may seem hackneyed to some. My excuse can be found in the great number of patients with maltreated lesions on their genitals who daily come to the attention of physicians doing syphilology; patients who have been told that their sore is "nothing but a hair cut," a pimple, a cold sore, or a soft chancre, and who have been dismissed after treatment with silver nitrate or calomel powder and told to "forget about it." Six weeks or so later full-blown secondary lesions develop, the spirochaetae become widely disseminated, and their chances of a permanent cure are markedly reduced. This sad sequence of events is of frequent occurrence.

The golden opportunity in the treatment of syphilis lies in its extremely early recognition and intensive treatment. To render our best service we should make our diagnosis in the first week of the chancre, before the blood Wassermann becomes positive. If we can do so, we can expect a very high percentage of cures (90 per cent Stokes). As the blood Wassermann becomes positive this percentage of possible cures declines. It becomes still lower in the secondary stage and very low in tertiary phases. In the latter it is somewhat doubtful, and a moot question, as to whether or not we can use the word "cure" in

speaking of our results. Possibly the word "arrest" would be better. This was demonstrated experimentally by Kolle when he showed that it is impossible to completely eradicate the spirochaetae in a laboratory animal if forty-five days have elapsed after inoculation. The percentage of cures seems to be inversely proportional to the duration of the infection. So the ideal toward which to strive is as early a diagnosis as is possible.

The appearance of a genital lesion is of little value in early differential diagnosis save in textbook types of cases. It would be far better if medical students were taught the futility of attempting to diagnose venereal sores by such clinical symptoms as induration, adenopathy, multiplicity, etc., or by the history of the lesions. These are apt to be snares and delusions. It has been shown that 65 per cent of all genital lesions contain the spirochaeta pallida. This includes the apparently innocent herpetic-looking lesions, so-called hair cuts and soft chancres, many of which we would pronounce harmless, judging by their appearance. *The only safe rule is to regard all genital lesions as potentially luetic until proved otherwise.*

Many physicians depend upon the blood Wassermann for their diagnosis. This surely is a step in the right direction, but even this valuable test will not give us as early an answer as we need, for it is rarely positive in the first week of chancre, when the chances of a cure are highest.

The one certain method of differentiating the primary lesion of syphilis from local lesions is by demonstrating the presence or absence of spirochaeta pallida by means of the darkfield microscope. Theoretically all chancres should show the presence of this organism. However, such variable factors as the personal skill of the examiner, errors in technique or previous local antiseptic treatment make it difficult to find the spirochaetae in all patients. Klauder was able to obtain positive darkfield findings in 94 per cent of untreated lesions which afterward were proved to be luetic.

The original method of doing the darkfield examination on the serum expressed from the surface of the chancre is very reliable; but it is apt to be falsely negative in those cases which have had calomel powder or caustics applied to the lesion prior to examination. This disadvantage can be removed by having physiologic saline packs applied to the sore for twenty-four to forty-eight hours before the next examination, by which time the spirochaetae will have reappeared. An even better method is that of A. Alexio, who recently reported that salt solution injected under the base of a chancre and afterward aspirated would be found to contain spirochaetae in cases in which serum from the surface was negative. If we should fail to find the organisms by these two methods we can resort to that most reliable method of gland puncture. In this procedure salt solution is injected into a neighboring inguinal gland, the gland is somewhat macerated by moving the point of the needle, the salt solution is withdrawn and examined. This is an extremely reliable procedure. It demonstrates the spirochaetae in some cases which were negative by the other methods of examination. Moreover it does away with the danger of mistaking the harmless spirochaeta refringens, which is fre-

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